Teaching Plan

Midterm exam (week 10)

1. **Ordinary Differential Equations**
   - Separable and linear first-order equations
   - Second-order equations reducible to first-order
   - Linear n^{th} -order equations
   - Homogeneous equations
   - Non-homogeneous equations
2. **Series Solutions of Ordinary Differential Equations**
   - Power series solutions, ordinary and singular points
   - Introduction to Frobenius solutions

Week 1- 5,
Quiz 1 & 2

3. **Fourier Series and Partial Differential Equations**
   - Fourier, Fourier cosine and Fourier sine series and their properties
   - Introduction to heat, vibration and potential equations with boundary and/or initial conditions
   - Linearity, superposition and separation of variables
   - Solution of homogeneous and non homogeneous problems by separation of variables and eigen-function expansions

Week 6 -10,
Quiz 3

4. **Transforms**
   - Definition and lagebraic properties
   - Solution of differential equations
   - Application to step functions and delta functions

Week 11-14,
Quiz 4

Assessments:

- Quiz (test) : 20 % (each quiz 5%)
- Assignment : 10 %
- Midterm examination : 20 %
- Final examination : 50 %